THE NATURAL HABITAT OF HELIAMPHORA HETERODOXA STEYERMARK

by J. Bogner

In February of 1975, I was able to join Prof. Dr. V. Vareschi, Mr. O. Huber and wife, as well as several Indian carriers of the Kamarakoto tribe in order to climb up the Auyán-tepuí in the Estado Bolivar, Venezuela. The trip and climb up from Kamarata to the summit plateau took three and one-half days.

The Auyán-tepuí is one of the largest tepuís within the Pan-tepuí area which is located in southern Venezuela. The Auyán-tepuí is a typical tepuí having a flat plâteau summit and surrounded by high vertical cliffs composed of pink to red sandstone. The summit plateau is divided by deep canyons and crevices, has bogs, creeks and small streams and wooded areas as well as parts with low vegetation. The total area of the summit plateau is about 700 sq. km. and the highest point is approximately 2500 meters (8250 ft.). In the northern part one finds the Angel Falls with a height of about 1000 meters (3300 ft.) which is the highest waterfall in the world.

On the summit plateau, at about 2400 meters (7920 ft.), Heliamphora heterodoxa grows in full sunlight. The plants have reddish pitchers and where shaded, they were more or less greenish. The flowers have a white color but turn reddish after anthesis.

Heliamphora heterodoxa grows in humus accumulations which have been formed in flat depressions of sandstone. These humus accumulations consist of a peat substrate like black peat. The soil is very acid and poor in nutrients. The middle year temperature is 14°-15° C. (57°-59°F.), and a minimum of 4° C. (38°F.) has been established. The relative humidity is high because there are often fogs on the summit plateau. Also, during the dry season, fog usually covers the summit plateau in the early morning and forenoon and then often it becomes clear at midday. The habitat of Heliamphora heterodoxa is very wet or boggy and often the plants stand several centimeters in water which normally cannot flow off from the depressions of sandstone. The accumulated humus is never deep. Heliamphora heterodoxa grows there in large masses with Stegolepis, Paepalanthus, Tepuia, Xyris, Cyrilla, Tofieldia, Nietneria, Cottendorfia, Brocchinia, etc.

In cultivation we grow Heliamphora species (H. nutans, H. minor and H. heterodoxa) in a cool house in pure Sphagnum moss. The plants stand in pots which are set in saucers of rainwater or in wet moss. Heliamphoras require a high humidity and one may attach a glass bell over them or place them in a covered frame which can hold an adequate humidity. The plants have relatively few roots to leaf mass. Also, Heliamphoras demand much light, and we shade the sunshine from spring until autumn in late forenoon and remove the shade in the early afternoon (conditions in South Germany). As to temperature, approximately 10°C. (50°F.) is best in winter, and during summer the temperature is increased appropriately with the weather. We have been cultivating Heliamphoras successfully with these simple methods for decades of years.

PEAT BOG FORMATION

by Terry Brokenbro

Although the formation of the peat bog is as varied as CP themselves, basically there are two types, the formation of which I have set out below:

THE SEDGE BOG: The sedge bog will mainly start its formation with a shallow lake, usually with an inlet and outlet of water. Through its history, the inlet brings nutrients to the gradually dying lake. See Fig. 1. The decline usually begins at the shallow edge of the lake (1) where sediment from deciduous trees and dying sedges collects and allows the gradual encroachment of willows and other moisture-loving perennials. With the passing of thousands of years and repetition of this process, the lake will eventually become completely filled and covered by deciduous forest. However, it is while this process actually takes place that is of particular interest to the CP enthusiast. At the actual place of peat formation (2) will be found CP and other acid-loving perennials, e.g. Erica. As this process develops, the CP will eventually only grow where the acid streams now exist.

THE SPHAGNUM BOG: Although the formation of the sphagnum bog is similar to that of the sedge bog, it differs in the fact that is is very much more acid and therefore generally richer in CP. One reason for this high acid content is that many sphagnum bogs do not have an inlet and outlet of water. Many sphagnum bogs found today are in fact lakes which were created by ice erosion during the last ice age (see Fig. 2). Sphagnum moss will often first take hold on the terminal moraine, which is usually the lowest part of the lake shore where excess water from the lake will drain away. Logically, this is therefore the most wet area. CP may even be found growing here at this stage of the bog. As reeds and other vegetation die, a mat of vegetation is formed into which grows sphagnum and other binding agents collecting into a floating mass upon the lake surface (see Fig. 3). Usually this mat never exceeds several feet in thickness and as the process continues, pine forest will

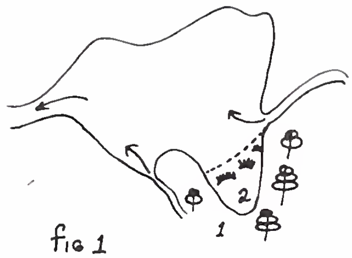


fig 1



fig 2

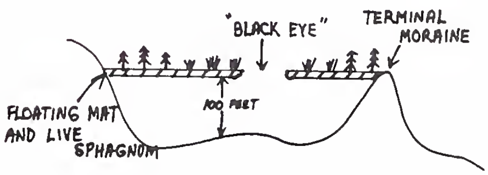


fig 3

follow the advancing sedges, CP and other acid-loving perennials. Finally, small pockets of water will remain, known in Germany as "black eyes" which are aptly named as these will often descend to one hundred feet or more.

If you think you have found one of these "hidden" lakes on a CP field trip, a simple test will reveal all. Find a clump of small pine trees and jump up and down near them. The sphagnum moss should give way a little under your weight and shortly you will begin to actually see the trees sway to and fro.

To stress Don Schnell's views in Volume IV, No. 3, page 42, "that habitat destruction, so rampant and efficient in this age, is the chief threat to most CP."

THE CARNIVOROUS PLANTS OF ALBANY, WESTERN AUSTRALIA

by Doreen Davidson

For those contemplating growing West Australian CP's, particularly from the Albany area, a few weather statistics may be helpful. Generally speaking, Albany has a very mild climate. Winter, the growing season, is cold and wet, but frosts are very rare; and summer temperatures are kept moderate by sea breezes; seldom do we experience temperatures above 38° C. (100°F.) on more than three days each summer. However, many CP's growing under these conditions also extend into areas of light frost and high summer temperatures. The average maximum and minimum temperatures and rainfall for Albany are as follows:

January	23.2° C. (73°F.)	14.7°C. (59°F.)	19 mm. (0.75 in.)
February	23.4° C. (74° F.)	14.9°C. (59°F.)	22.2 mm. (0.87 in.)
March	22.3° C. (72° F.)	14.2° C. (57.5°F.)	34.8 mm. (1.37 in.)
April	21.3° C. (69° F.)	12.4° C. (52°F.)	71.6 mm. (2.75 in.)
May	18.8° C. (66° F.)	10.4° C. (50°F.)	93.0 mm. (3.62 in.)
June	16.8° C. (63° F.)	8.8° C. (48°F.)	105.4 mm. (4.25 in.)
July	16.1° C. (60° F.)	7.9° C. (46°F.)	117.6 mm. (4.62 in.)
August	16.5° C. (62° F.)	8.1° C. (46°F.)	114.6 mm. (4.12 in.)
September	17.6° C. (63° F.)	9.1° C. (48°F.)	84.0 mm. (3.37 in.)
October	18.7° C. (65° F.)	10.0° C. (50° F.)	84.0 mm. (3.37 in.)
November	20.7° C. (68° F.)	12.0° C. (54°F.)	46.0 mm. (1.75 in.)
December	22.2° C. (72° F.)	13.7° C. (57°F.)	35.0 mm. (1.37 in.)

The average yearly rainfall is 827.8 mm. (32.8 in.).

The most common Drosera is D. erythrorhiza which grows in such a variety of soils and situations that it would probably be most adaptable for culture. It forms colonies in dense shade, semi-shade or full sun; in sandy limestone areas, heathlands, light forest, in pockets of soil among granite rocks, on the edges of swamps and within reach of sea spray. Almost anywhere, in fact, except in very wet areas.